PROJECT NUMBER: 2500
PROJECT TITLE: Fundamental Chemistry
PROJECT LEADER: J. I. Seeman
PERIOD COVERED: July, 1988

I. FLAVOR/ODOR CHEMISTRY (Paine, Seeman)

A. Objective: To develop new technologies for smoke deliveries of desired flavorants; to prepare new substances for flavor/odor evaluation.

B. Results and Plans: Two gallons of glucose menthyl carbonate in propylene glycol were delivered to Flavor Development. A large scale preparation of Di-d-neoisomenthyl 2,6-naphthalene-dicarboxylate was completed. A proposal is being developed with Professors R. Anholt and S. Simon (Duke University) to examine trigeminal effects and to develop trigeminal assays.

II. CHEMICAL PHYSICS STUDIES OF TOBACCO CONSTITUENTS (Paine, Secor, Seeman)

A. Objective: To obtain structural information about tobacco constituents/flavorants; to develop information on cluster formation, chemical reactions in clusters, and novel modes of controlling smoke formation.

B. Results and Plans: A detailed literature search is nearly completed on the use of novel mineral phases as paper additives for the SS program. A variety of aromatic compounds were prepared for examination by laser spectroscopy. New approaches have been proposed to observe chemical reactions in clusters.

III. REMOVAL OF NICOTINE FROM AQUEOUS TOBACCO PROCESSING FLUIDS (Secor, Seeman)

A. Objective: To develop techniques to remove nicotine and other tobacco alkaloids from aqueous tobacco processing fluids to the exclusion of all other components.

B. Results and Plans: Two FDA-approved ion exchangers (water insoluble, decane soluble organic acids) were examined to extract nicotine from a dilute aqueous solution. Excellent transfer was observed using Panodan-SDK, and this information is being transferred to Sepracor. HPLC analysis of the nicotine was provided by R. Izac.

IV. MISCELLANEOUS (Secor)

A. Results and Plans: An 862 g sample of nicotine was purified by distillation, in order to meet a request for a nicotine citrate solution from Flavor Development. Together with R. Izac and J.

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Naworal, succinylated 4'-hydroxyethylnicotine was prepared, analyzed, and purified. This material will serve as the hapten for the preparation of monoclonal nicotine antibodies.

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